

$\Delta V_s$  is equal to or greater than  $\Delta V_p$ , with the inner volume change when said pump emits a pulsation therefrom being represented by  $\Delta V_p$ , the pressure caused by said volume change being represented by  $P$ , and the volume change due to said pressure  $P$  which occurs in the flow passage of the cooling liquid, other than in said pump, being represented by  $\Delta V_s$ .

2. (Amended) A liquid cooling system as defined in claim 1, further comprising an accumulator, in which the volume change of the cooling liquid in the accumulator due to said pressure  $P$  is equal to or greater than  $\Delta V_p$ .

3. (Amended) A liquid cooling system as defined in the claim 1, wherein said cooling liquid is pressurized at a pressure that is equal to or greater than that of the atmosphere.

4. (Amended) A liquid cooling system as defined in the claim 2, wherein said accumulator comprises a supply opening for supplying said circulating cooling liquid therethrough and a discharge opening for discharging said cooling liquid therethrough, and a chamber that maintains gas and said cooling liquid therein.

5. (Amended) A personal computer, comprising:

a semiconductor element;

a signal input portion;

a display device; and

a liquid cooling system, including:

a pump of the pulsation type for supplying cooling liquid;

a heat receiving jacket supplied with said cooling liquid and positioned to receive heat generated within said semiconductor element;

a heat radiation pipe for radiating heat which is supplied by the cooling liquid passing through said heat receiving jacket; and

a passage for circulating the cooling liquid passing through said heat radiation pipe into said pump so that said cooling liquid circulates within a closed flow passage, wherein

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$\Delta V_s$  is equal to or greater than  $\Delta V_p$ , with the inner volume change when said pump emits a pulsation therefrom being represented by  $\Delta V_p$ , the pressure caused by said volume change being represented by P, and the volume change due to said pressure P which occurs in the flow passage of the cooling liquid, other than in said pump, being represented by  $\Delta V_s$ .

6. (Amended) A personal computer as defined in the claim 5, wherein said liquid cooling system further comprises an accumulator, in which the volume change of the cooling liquid in the accumulator due to said pressure P is equal to or greater than  $\Delta V_p$ .

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7. (Amended) A personal computer as defined in the claim 5, wherein said cooling liquid is pressurized at a pressure that is equal to or greater than that of the atmosphere.

8. (Amended) A personal computer, comprising:

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- a main body including a semiconductor element and a signal input portion;
- a display device having a display portion connected with said main body through a movable mechanism; and
- a liquid cooling system, including:
  - a pump of the pulsation type for supplying cooling liquid;
  - a heat receiving jacket disposed within said main body and supplied with said cooling liquid, said heat receiving jacket being positioned to receive heat generated within said semiconductor element;
  - a heat radiation pipe being disposed on a back surface of said display portion of said display device for radiating heat which is supplied by the cooling liquid passing through said heat receiving jacket;
  - a passage for circulating the cooling liquid passing through said heat radiation pipe into said pump so that said cooling liquid circulates within a closed flow passage; and
  - an accumulator connected to said closed flow passage and having a supply opening for supplying said circulating cooling liquid therethrough, a discharge opening for

discharging said cooling liquid therethrough, and a chamber that maintains gas and said cooling liquid therein, wherein

the amount of the cooling liquid maintained within said accumulator changes in response to emission of a pulsation from said pump.

9. (Amended) A personal computer as defined in the claim 8, wherein  $\Delta V_s$  is equal to or greater than  $\Delta V_p$ , with the inner volume change when said pump emits a pulsation therefrom being represented by  $\Delta V_p$ , the pressure caused by said volume change being represented by  $P$ , and the volume change due to said pressure  $P$  in the flow passage of the cooling liquid, other than said pump, being represented by  $\Delta V_s$ .

10. (Amended) A personal computer, comprising:

- a semiconductor element;
- a signal input portion;
- a display device; and
- a liquid cooling system, including:
  - an emission pump of the pulsation type for supplying cooling liquid by using reciprocating movement of a diaphragm having a piezo element;
  - a heat receiving jacket supplied with said cooling liquid and positioned to receive heat generated within said semiconductor element;
  - a heat radiation pipe for radiating heat which is supplied by the cooling liquid passing through said heat receiving jacket;
  - an accumulator having a supply opening for supplying said circulating cooling liquid therethrough, a discharge opening for discharging said cooling liquid therethrough, and a chamber for maintaining gas and said cooling liquid therein; and
  - a passage for circulating the cooling liquid passing through said heat radiation pipe into said pump so that said cooling liquid circulates within a closed flow passage, wherein

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the amount of cooling liquid maintained within said accumulator changes in response to emission of a pulsation from said pump.

✓ Please add the following new claims to the application.

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11. A personal computer as defined in claim 8, wherein said accumulator is mounted on said display device.
  12. A liquid cooling system as defined in claim 2, wherein plural pumps of the pulsation type are connected in series in said flow passage.
  13. A liquid cooling system as defined in claim 12, wherein two of said plural pumps are operated to respectively produce pulsations of said cooling liquid that are 180° different in phase from each other.
  14. A liquid cooling system as defined in claim 13, wherein said pumps emit pulsations by the reciprocal movement of the member in said pump is caused by bending or flexible of a diaphragm.
  15. A liquid cooling system as defined in claim 1, wherein at least a portion of the circulating passage for carrying said cooling liquid therein is formed of a flexible material.
  16. A liquid cooling system as defined in claim 1, wherein the cooling liquid in said closed flow passage is pressurized at a pressure higher than atmospheric pressure.
  17. A liquid cooling system as defined in claim 16, wherein at least a portion of said circulating passage is formed of a rubber or resin material and said portion is coated with a metal film.

**IN THE ABSTRACT OF THE DISCLOSURE:**

Please replace the original abstract with the attached abstract.